

What is claimed is:

1. A method of encoding an audio signal having audio characteristics, said method comprising the steps of:

5 segmenting the audio signal into a plurality of segments based on the audio characteristics of the audio signal; and
encoding the segments with different encoding settings.

10 2. The method of claim 1, wherein said adjusting comprises the step of segmenting the audio signal into a plurality of segments based on the characteristics of the audio signal.

3. The method of claim 2, wherein the characteristics include voicing characteristics in said segments of the audio signal.

15 4. The method of claim 2, wherein the characteristics include energy characteristics in said segments of the audio signals.

20 5. The method of claim 2, wherein the characteristics include pitch characteristics in said segments of the audio signals.

6. The method of claim 1, wherein said segmenting is carried out concurrent to said encoding step.

25 7. The method of claim 1, wherein said segmenting is carried out after said encoding step.

30 8. The method of claim 3, wherein a plurality of voicing values are assigned to the voicing characteristics of the audio signal in said segments, and wherein said segmenting is carried out based on the assigned voicing values.

9. The method of claim 8, wherein the plurality of values includes a value designated to a voiced speech signal and another value designated to an unvoiced signal.

10. The method of claim 8, wherein the plurality of values further includes a value designated to a transitional stage between the voice and unvoiced signal.

11. The method of claim 8, wherein the plurality of values further includes a value designated to an inactive period in the speech signal.

12. The method of claim 1, further comprising the step of selecting a quantization mode for said encoding, wherein the segmenting step is carried out based on the selected quantization mode.

13. The method of claim 1, wherein said segmenting step is carried out based on a selected target accuracy in reconstructing of the audio signal.

14. The method of claim 5, wherein said segmenting step is carried out for providing a linear pitch representation in at least some of said segments.

15. The method of claim 1, wherein the audio signal is encoded into audio signal data, said method further comprising the steps of

forming a parameter signal based on the audio signal data having a first number of signal data;

downsampling the parameter signal to a second number of signal data for providing a further parameter signal, wherein the second number is smaller than the first number; and

upsampling the further parameter signal to a third number of signal data in decoding, wherein the third number is greater than the second number.

16. The method of claim 15, wherein the third number is equal to the first number.

17. The method of claim 15, wherein the signal data comprise quantized parameters.

18. The method of claim 15, wherein the signal data comprises unquantized parameters.

19. A decoder for generating a audio signal indicative of an audio signal having audio characteristics, wherein the audio signal is coded in a coding step into a plurality of parameters at a data rate, and the coding step is adjusted based on the characteristics of the audio characteristics of audio signals for providing an adjusted representation of the parameters, said decoder comprising:

an input for receiving audio data indicative of the parameters in the adjusted representation; and

a module, responsive to the audio data, for generating the audio signal based on the adjusted representation and the characteristics of the audio signal.

20. The decoder of claim 19, wherein the audio data is recorded on an electronic medium, and wherein input of the decoder is operatively connected to the electronic medium for receiving the audio data.

21. The decoder of claim 19, wherein the audio data is transmitted through a communication channel, and wherein the input of the decoder is operatively connected to the communication channel for receiving the audio data.

22. A coding device for encoding an audio signal with audio characteristics the coding device comprising:

an input for receiving audio data indicative of the characteristics; and

an adjustment module for adjusting the parameters based on the characteristics of the audio signal for providing an adjusted representation of the parameters.

23. The coding device of claim 22, further comprising a quantization module, responsive to the adjusted representation, for coding the parameters in the adjusted representation.

24. The coding device of claim 22, further comprising an output end, operatively connected to a storage medium, for providing data indicative of the coded parameters in the adjusted representation to the storage medium for storage.

25. The coding device of claim 22, further comprising an output end, operatively connected to a communication channel, for providing signals indicative of the coded parameters in the adjusted representation to the communication channel for transmission.

5 26. A computer software product embodied in an electronically readable medium for use in conjunction with an audio coding device, the audio coding device encoding an audio signal with audio characteristics for providing a plurality of parameters indicative of the audio signal, said computer software product comprising:

a code for determining the characteristics of the audio signal; and

10 a code for adjusting the parameters based on the characteristics of the audio signal for providing an adjusted representation of the parameters.

27. An electronic device comprising:

a decoder for generating a synthesized audio signal indicative of an audio signal

15 having audio characteristics, wherein the audio signal is coded in a coding step into a plurality of parameters at a data rate, and the coding step is adjusted based on the

characteristics of the audio characteristics of audio signals for providing an adjusted

representation of the parameters; and an input for receiving audio data indicative of the

parameters in the adjusted representation for providing the audio data to the decoder, so as

20 to allow the decoder to generate the synthesized audio signal based on the adjusted representation.

28. The electronic device of claim 27, wherein the audio data is recorded in an electronic medium, and wherein the input is operatively connected to the electronic

25 medium for receiving the audio data.

29. The electronic device of claim 27, wherein the audio data is conveyed through a communication channel, and wherein the input is operatively connected to the communication channel for receiving the audio data.

30. The electronic device of claim 27, comprises a mobile terminal.

31. A communication network, comprising:

a plurality of base stations; and
a plurality of mobile stations adapted to communicating with the base stations,
wherein at least one the mobile stations comprises:

5 a decoder for generating a synthesized audio signal indicative of an audio
signal having audio characteristics, wherein the audio signal is coded in a coding
step into a plurality of parameters at a data rate, and the coding step is adjusted
based on the characteristics of the audio characteristics of audio signals for
providing an adjusted representation of the parameters; and

10 an input for receiving audio data indicative of the parameters in the
adjusted representation from at least one of the base stations for providing the
audio data to the decoder, so as to allow the decoder to generate the synthesized
audio signal based on the adjusted representation.

32. A decoder for reconstructing an audio signal, wherein the audio signal is encoded
for providing parameters indicative of the audio signal, the parameters including pitch
15 contour data containing a plurality of pitch values representative of an audio segment in
time, and wherein the pitch contour data in the audio segment in time is approximated by a
plurality of consecutive sub-segments in the audio segment, each of said sub-segments
defined by a first end point and a second end point, said decoder comprising:

20 an input for receiving audio data indicative of the end points defining the sub-
segments; and

a reconstruction module for reconstructing the audio segment based on the
received audio data.